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PATENT APPLICATION  
Docket No. 13693.22.1

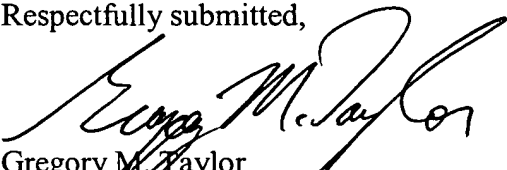
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of )  
 )  
Yan R. Kucherov et al. )  
 )  
Serial No.: 10/801,072 ) Art Unit  
 ) 2812  
Filed: March 15, 2004 )  
 )  
Conf. No.: 1261 )  
 )  
For: SOLID STATE ENERGY )  
 )  
CONVERTER )  
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CERTIFICATE OF DEPOSIT UNDER 37 C.F.R. § 1.8

I hereby certify that the following documents are being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 28<sup>th</sup> day of September 2004:

- Transmittal for Information Disclosure Statement
- Information Disclosure Statement
- Form PTO-1449
- Copies of references
- Postcard

Respectfully submitted,  
  
Gregory M. Taylor  
Attorney for Applicants  
Registration No. 34,263  
Customer No. 022913  
Telephone No. (801) 533-9800



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TRANSMITTAL FOR INFORMATION DISCLOSURE STATEMENT

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Transmitted herewith for filing and pursuant to 37 C.F.R. § 1.97 is an Information Disclosure Statement, which includes the following statements, if any, required variously by 37 C.F.R. § 1.98:

- \_\_\_ Statement of relevance of selected cited references not in the English language which are not translated.
- \_\_\_ Statement that selected cited references are substantially cumulative of an enclosed or previously submitted reference.
- \_\_\_ Statement that selected cited references were previously cited by or submitted to the United States Patent and Trademark Office in a prior application which is relied upon for an earlier filing date under 35 U.S.C. § 120.

A. Additional Materials Required Due to Content of Information Disclosure Statement

Transmitted are the following documents in addition to the Information Disclosure Statement as required variously under 37 C.F.R. § 1.98:

- ☒ Form PTO-1449 listing 72 references submitted for consideration.
- ☒ Copies of all of the references listed on the Form PTO-1449 that are not U.S. patent documents.
- ☐ Copies of the following documents from the prosecution of a previous, related application:
- ☐ Form PTO-1449 AND INFORMATION DISCLOSURE STATEMENT;  
and
- ☐ Form PTO-892
- B. Additional Materials Required Due to Timing of Filing of Information Disclosure Statement

The transmitted Information Disclosure Statement is being filed within one (1) of the following four (4) time periods:

- I. ☒ Prior to the later of either three (3) months following the filing date or the mailing of a first Office Action. Accordingly, no materials other than those listed above are enclosed.
- II. ☐ Following the latter of either three (3) months following the filing date or the mailing of a first Office Action, but before the mailing of a final Office Action or a Notice of Allowance. Accordingly, to secure consideration thereof, one (1) of the following is also enclosed:
- ☐ Promptness Certification; or
- ☐ Credit Card Payment Form PTO-2038 authorizing payment of \$\_\_\_\_\_ constituting the submission fee set forth in 37 C.F.R. § 1.17(p).
- III. ☐ After the mailing of a Notice of Allowance, but before payment of the Issue Fee. Accordingly, in order to secure consideration thereof, each of the following are also enclosed:
- ☐ Promptness Certificate;
- ☐ Petition for Consideration; and
- ☐ Check No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ constituting the petition fee set forth in 37 C.F.R. § 1.17(i)(1).
- IV. ☐ After payment of the Issue Fee. Accordingly, in order to secure consideration thereof, each of the following are also enclosed:

\_\_\_ Petition to Withdraw from Issue; and

\_\_\_ Check No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ constituting the petition fee set forth in 37 C.F.R. § 1.17(i)(1).

C. Fees

The Commissioner is hereby authorized to charge payment of or any deficiency in the following fees associated with this communication, or to credit any overpayment thereof, to Deposit Account No. 23-3178. A duplicate copy of this letter is enclosed.

X Any fee required in relation to filing of this letter or any documents transmitted therewith.

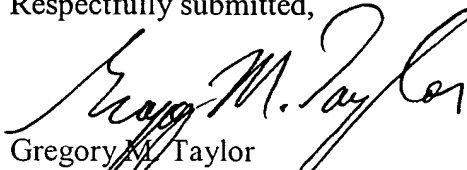
\_\_\_ The submission fee set forth in 37 C.F.R. § 1.17(p) in the event that 37 C.F.R. § 1.97(c) applies and the Examiner is not satisfied that any Promptness Certificate submitted meets the requirements of 37 C.F.R. § 1.97(e).

\_\_\_ The submission fee set forth in 37 C.F.R. § 1.17(p).

\_\_\_ The petition fee set forth in 37 C.F.R. § 1.17(i)(1).

Dated this 28<sup>th</sup> day of September 2004

Respectfully submitted,



Gregory M. Taylor  
Attorney for Applicants  
Registration No. 34,263  
Customer No. 022913  
Telephone No. (801) 533-9800

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Applicant: Yan R. Kucherov et al.

Confirmation No.: 1261

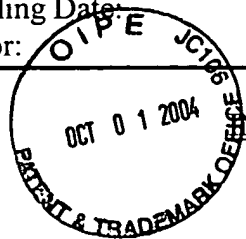
Serial No.: 10/801,072

Att'y Docket No.: 13693.22.1

Filing Date: March 15, 2004

Group: 2812

For: SOLID STATE ENERGY CONVERTER

INFORMATION DISCLOSURE CITATIONS MADE BY APPLICANTU.S. Patent Documents

<u>Examiner Initial*</u>	<u>Document Number</u>	<u>Issue Date</u>	<u>Name</u>
___ 1	3,173,032	03/09/1965	Maynard
___ 2	3,267,308	08/16/1966	Hernqvist
___ 3	3,328,611	06/27/1967	Davis
___ 4	3,515,908	06/02/1970	Caldwell
___ 5	3,579,031	05/18/1971	Kearns
___ 6	3,808,477	04/30/1974	Swank
___ 7	3,843,896	10/22/1974	Rason et al.
___ 8	3,890,161	06/17/1975	Brown, III
___ 9	3,899,696	08/12/1975	Fletcher et al.
___ 10	3,983,423	09/28/1976	Rasor et al.
___ 11	4,040,903	08/09/1977	Monroe, Jr.
___ 12	4,047,093	09/06/1977	Levoy
___ 13	4,151,438	04/24/1979	Fitzpatrick et al.
___ 14	4,188,571	02/12/1980	Brunson
___ 15	4,266,179	05/05/1981	Hamm, Jr.
___ 16	4,280,074	07/21/1981	Bell
___ 17	4,281,280	07/28/1981	Richards

Examiner:

Date Considered:

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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_____ 18	4,298,768	11/03/1981	Israel et al.
_____ 19	4,303,845	12/01/1981	Davis
_____ 20	4,323,808	04/06/1982	Davis
_____ 21	4,346,330	08/24/1982	Lee et al.
_____ 22	4,368,416	01/11/1983	James, deceased
_____ 23	4,373,142	02/08/1983	Morris
_____ 24	4,528,417	07/09/1985	Chubb
_____ 25	4,667,126	05/19/1987	Fitzpatrick
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_____ 36	5,572,042	11/05/1996	Thomas et al.
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_____ 38	5,623,119	04/22/1997	Yater et al.
_____ 39	5,637,946	06/10/1997	Bushman
_____ 40	5,646,474	07/08/1997	Pryor
_____ 41	5,722,242	03/03/1998	Edelson
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_____ 44	5,955,772	09/21/1999	Shakouri et al.
_____ 45	5,973,259	10/26/1999	Edelson
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_____ 48	6,020,671	02/01/2000	Pento et al.
_____ 49	6,022,637	02/08/2000	Wilson
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_____ 53	6,489,704 B1	12/03/2002	Kucherov et al.

Foreign Patent Documents

<u>Examiner Initial*</u>	<u>Document Number</u>	<u>Publication Date</u>	<u>Country or Patent Office</u>	<u>Translation</u>
_____ 54	0 452 661 A3	10/23/1991	EPO	N/A

Examiner:

Date Considered:

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Other Documents

(including author, title, pertinent pages, etc.)

Examiner  
Initial\*

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- \_\_\_\_\_ 56 Bass, John C. et al., *Improved Thermoelectric Converter Units and Power Generators*, Electronics Tech Briefs, December 1999.
- \_\_\_\_\_ 57 DiSalvo, Francis, J., *Thermoelectric Cooling and Power Generation*, Science, Vol. 285 (30 July 1999), pp. 703-706.
- \_\_\_\_\_ 58 Mahan, G.D. et al., *Multilayer Thermionic Refrigerator and Generator*, Journal of Applied Physics, Vol. 83, No. 9, May 1, 1998, pp. 4683-4689.
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- \_\_\_\_\_ 60 Rasor, Ned S., *VA. Technology of Thermoelectric and Thermionic Energy Conversion*, RASOR Associates Report, 1989, pp. 397-413.
- \_\_\_\_\_ 61 Rasor, Ned S., *VB. Engineering Aspects of Thermionic Energy Conversion*, RASOR Associates Report, 1989, pp. 415-439.
- \_\_\_\_\_ 62 Lin, T.P. et al., *Thermionic Emission Including Both Space-charge and Image Forces*, Journal of Applied Physics, Vol. 85, No. 8, April 15, 1989, pp. 3205-3211.
- \_\_\_\_\_ 63 Capper, Peter, *Properties of Narrow Gap Cadmium-based Compounds*, EMIS Datareviews Series No. 10, December 1993, pp. 207-211
- \_\_\_\_\_ 64 Bates, Clayton W. Jr., *Low-temperature Thermionic Emitters Using Metal-semiconductor Composites*, Materials Letters, Vol. 23, April 1995, pp. 1-5.
- \_\_\_\_\_ 65 Shakouri, Ali et al., *Heterostructure Integrated Thermionic Coolers*, Applied Physics Letters, Vol. 71, No. 9, September 1, 1997, pp. 1234-1236.

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- \_\_\_\_ 66 Collier, C.P. et al., *Electronically Configurable Molecular-Based Logic Gates*, Science, Vol. 285, July 16, 1999, pp. 391-394.
- \_\_\_\_ 67 Hagelstein, P.L. et al., *Enhanced Figure of Merit in Thermal to Electrical Energy Conversion Using Diode Structures*, Applied Physics Letters, Vol. 81, No. 3, July 15, 2002, pp. 559-561.
- \_\_\_\_ 68 Kucherov, Y. et al. *Energy Conversion Using Diode-like Structures*, Proceedings of the 21<sup>st</sup> International Conference on Thermoelectronics, 2002.
- \_\_\_\_ 69 Hagelstein, P.L. et al. *Thermally-Induced Current Injection Across an n\*-n Junction*, Proceedings of the 21<sup>st</sup> International Conference on Thermoelectronics, 2002.
- \_\_\_\_ 70 Hagelstein, P.L. et al. *Thermally-Induced Current Injection across an npn Structure*, Proceedings of the 22<sup>nd</sup> International Conference on Thermoelectrics, 2003.
- \_\_\_\_ 71 Kucherov, Y. et al. *Study of Emitter Structures for InSb Thermal Diodes*, Proceedings of the 22<sup>nd</sup> International Conference on Thermoelectrics, 2003.
- \_\_\_\_ 72 Venkatasubramanian, R. et al. *Thin-Film Thermoelectric Devices with High Room-Temperature Figures of Merit*, Nature, Vol. 413, October 11, 2001

### References Cited by Applicants

While the filing of Information Disclosure Statements is voluntary, the procedure is governed by the guidelines of Section 609 of the Manual of Patent Examining Procedure and 37 C.F.R. §§ 1.97 and 1.98. To be considered a proper Information Disclosure Statement, Form PTO-1449 shall be accompanied by a copy of each listed patent or publication or other item of information and a translation of the pertinent portions of foreign documents (if an existing translation is readily available to the applicant), an explanation of relevance of each reference not in the English language, and should be submitted in a timely manner as set out in MPEP Sec. 609.

Examiners will consider all citations submitted in conformance with 37 C.F.R. § 1.98 and MPEP Sec. 609 and place their initials adjacent the citations in the spaces provided on this form. Examiners will also initial citations not in conformance with the guidelines which may have been considered. A reference may be considered by the Examiner for any reason whether or not the citation is in full conformance with the guidelines. A line will be drawn through a citation if it is not in conformance with the guidelines AND has not been considered. A copy of the submitted form, as reviewed by the Examiner, will be returned to the applicant with the next communication. The original of the form will be entered into the application file.

Each citation initialed by the Examiner will be printed on the issued patent in the same manner as references cited by the Examiner on Form PTO-892.

Examiner:

Date Considered:

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form PTO-1449

Sheet 6 of 6

Applicant: Yan R. Kucherov et al.

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The reference designations "A1," "A2," etc. (referring to Applicant's reference 1, Applicant's reference 2, etc.) will be used by the Examiner in the same manner as Examiner's reference designations "A," "B," "C," etc. on Office Action Form PTO-1142.

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Examiner:

Date Considered:

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